Architecture of Grammar, day 1

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Architecture of Grammar

Early transformational grammar (before 1970):

- deep structure: determines interpretation
- transformations yield surface structure
- surface structure is articulated

Syntax-centric grammar (since 1970)

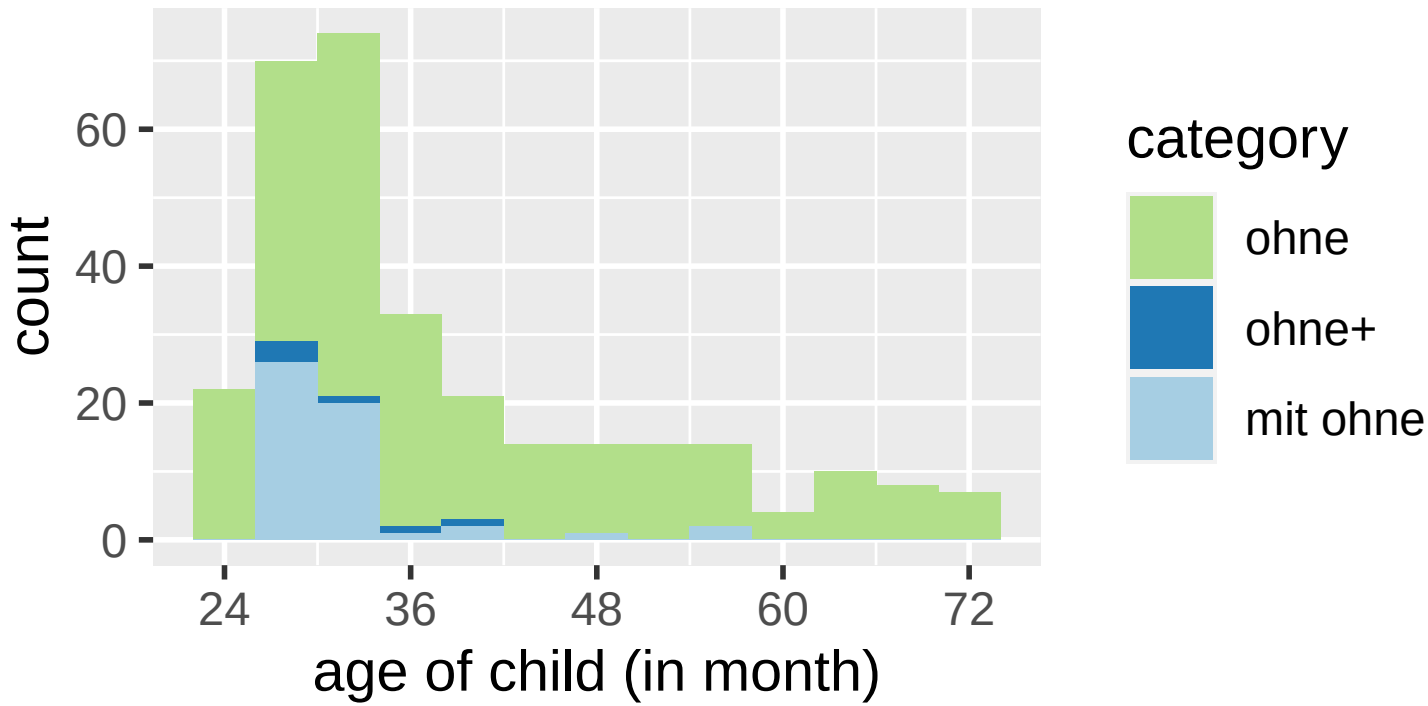
- syntax generates pair of two structures, LF and PF
- LF is interpreted, esp. model-theoretic interpretation
- PF is articulated

Meaning First view (Sauerland & Alexiadou 2020)

- meaning are algebraic conceptual structures
- morpho-syntax maps meaning structures to articulation

Main motivation: Spontaneous structure in child speech

Spanish and many other languages: children produce 'con sin' instead of 'sin'. Data from German (Sauerland et al. 2024):



Assump.: 'Sin' / 'ohne' correspond to a complex concept, NOT + WITH.

Plan of the minicourse

day 1: some notes on history, structure, morphology, cartography

day 2: movement and other binding structures

day 3: effability, logicality, other topics

Webpage: https://github.com/ulisauerland/ArchitectureOfGrammar

Please ask questions throughout!

Why did syntax-centric grammar prevail in the 1970s?

Intense debate ('Linguistics wars', Harris 2021)
Chomsky (1973), Jackendoff (1974): scope preference determined by surface order:

(1) a. John didn't buy many arrows.
b. Many arrows weren't bought by John.

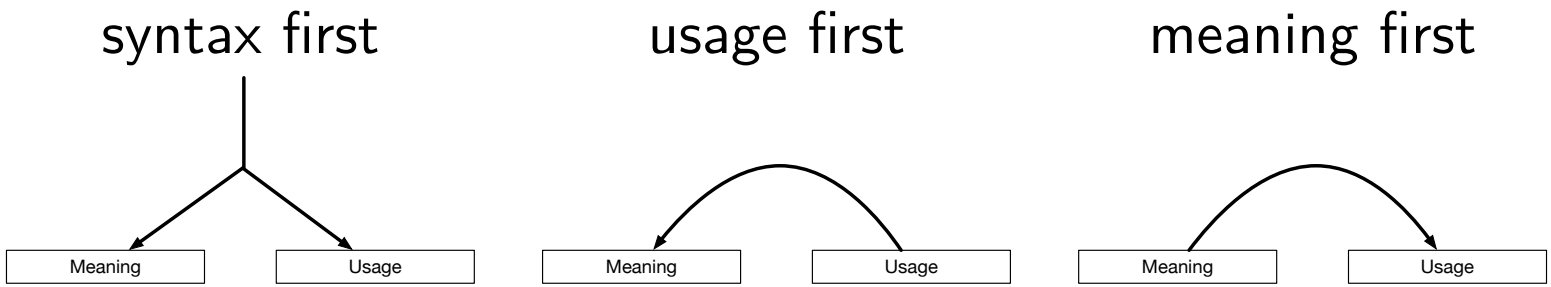
Partee (2015): Montague semantics requires traces.

(2) a. Every number is even or odd.
b. #Every number is even or every number is odd.

Philosophy of science perspective (Lakatos): Framework that generates interesting research questions prevails.

Revisiting Grammar Architecture

Conceivable architectures:



Predicted sensitivities for grammaticality:

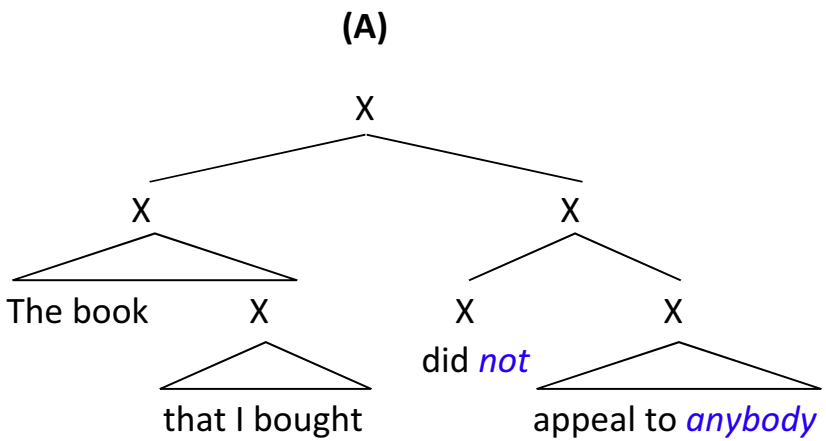
- **syntax first:** underdetermined, but found to be structure, categories, case, agreement
- **usage first:** linear order, information density
- **meaning first:** structure, logical properties

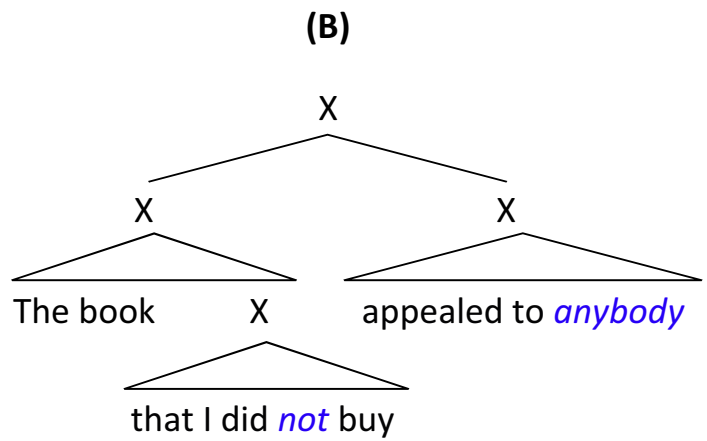
Start with arguments again 'usage first' view.

Order vs. Structure

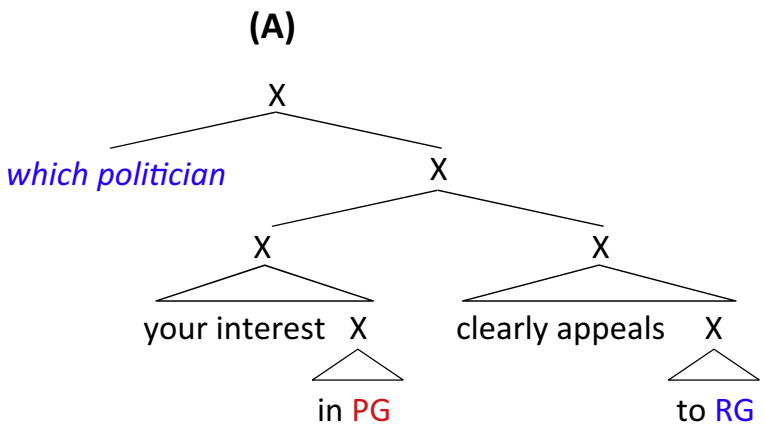
Everaert et al. (2015): Three classic arguments for structure

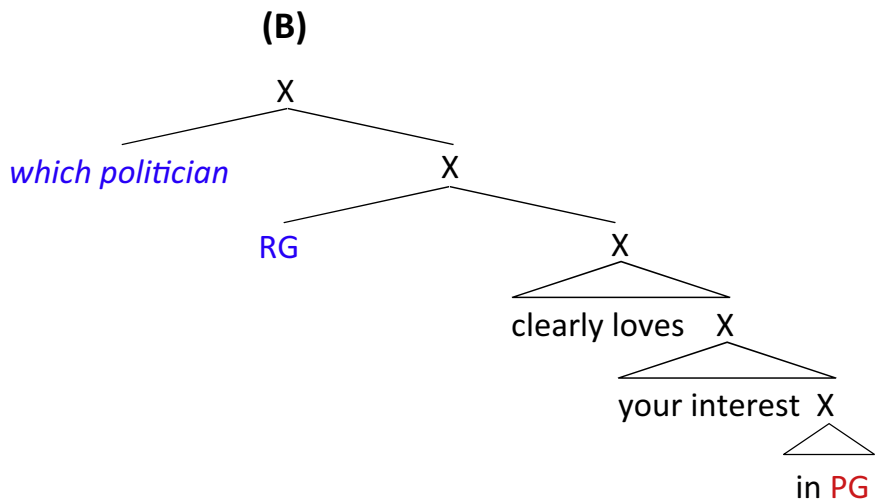
1) Negative Polarity Item licensing:



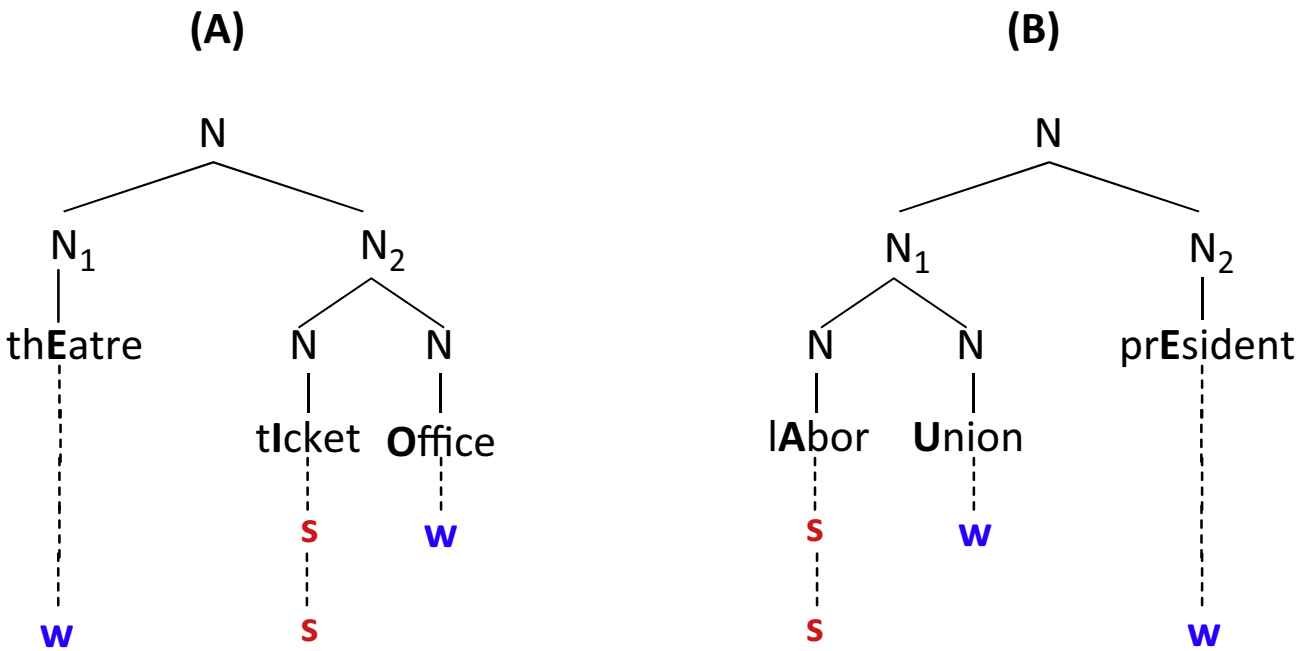


2) Parasitic Gap licensing





3) Compound stress



Conclusion: For determining which word strings are part of language, structure is important while linear order isn't.

Distributed Morphology

What else does language NOT care about?
Summary from Bobaljik (2017):

(2)

Syntax-all-the-way-down: The primary mode of meaningful composition in the grammar, both above and below the word level, is the syntax. Syntax operates on sub-word units, and thus (some) word-formation is syntactic.

(3)

Late Insertion or Realization: The pieces manipulated by the syntax (*functional morphemes*) are abstract, lacking phonological content. The pairing of phonological features with the terminals of the syntax (*vocabulary insertion* or *exponence*) happens post-syntactically, in the mapping from syntax to phonological form (PF).

Suppletion sensitive to structure 1

(21)

a. Khrushchev **stood,** threatening the Western imperialists.

b. Khrushchev **understood** / ***understanded.**
[[understand]$_{V}$ INFL]

c. Khrushchev **grandstanded** / ***grandstood**, threatening the Western imperialists..
[[[grandstand]$_{N}$]$_{V}$ INFL]

Suppletion sensitive structure 2

	POSITIVE	COMPARATIVE	SUPERLATIVE	
a.	kam	kam-tar	kam-tar-in	‘little’ (Persian)
b.	šüa	šüan-ar	šüan-ar-ste	‘pretty’ (Cimbrian German)
c.	mlad-ý	mlad-ší	nej-mlad-ší	‘young’ (Czech)
d.	nagy	nagy-obb	leg-nagy-obb	‘big’ (Hungarian)
e.	nüs˚ə	ç’a-nüs˚ə	a-ç’a-nüs˚ə	‘pretty’ (Ubykh)

ABB suppletion patterns:

	POSITIVE	COMPARATIVE	SUPERLATIVE	
a.	god	bed-re	bed-st	‘good’ (Danish)
b.	špatn-ý	hor-ší	nej-hor-ší	‘bad’ (Czech)
c.	asko	gehi-ago	gehi-en	‘many’ (Basque)
d.	šig’	pɛr’-am	pɛr’-mus	‘good’ (Kildin Saami)
e.	kwad	nax	nax-deda	‘many’ (Kabardian)

Syntax insensitive to allomorphy & suppletion

German plurality:

(3)
a. Die grünen Büch-**er** sind schön.
the-PL green-PL book-PL are-PL pretty

b. Die grünen Flasche-**n** sind schön.
the-PL green-PL book-PL are-PL pretty

c. Die grünen Berg-**e** sind schön.
the-PL green-PL mountain-PL are-PL pretty

d. Die grünen Auto-**s** sind schön.
the-PL green-PL car-PL are-PL pretty

e. **Sie** sind schön.
3.PL are-PL pretty

Lexical Categories

(34) a. Kate(s) quickly marrying William was prompted by ...
b. Kate's quick marriage to William was prompted by ...

a. marrying $= [\sqrt{\text{MARRY}}$ – verb] – noun
b. marriage $= \sqrt{\text{MARRY}}$ – noun

If 'verb' and 'noun' are truly expletives, they are not predicted by a meaning first model.

Allosemy?

Atoms are interpreted depending on their context (e.g. Marantz 2013), examples from Carston (2024):

√fetch ←→ FETCH* (= attractive) in a local adjectival context overtly realized as '-ing'

←→ FETCH (= get/retrieve) elsewhere

√liquid ←→ LIQUID* (= get rid of) in a local verbal context overtly realized as '-ate'

←→ LIQUID (= fluid) elsewhere

√book ←→ BOOK* (= register/reserve) in a local verbal context

←→ BOOK (= information tome) elsewhere

Homophony analysis in a meaning first structure. But ambiguity is predicted for 'fetching' and 'book' (but 'liquify' vs. 'liquidate').

Cartography

Crosslinguistically invariant structures:
Generalization (Dixon 1977, Cinque 1994 and others):

(4) The hierarchical order of adjectives: (Scontras et al. 2017)
dimension $\ll$ value $\ll$ age $\ll$ physical $\ll$ shape $\ll$ color $\ll$ material

(5) a. English:
the small red ball

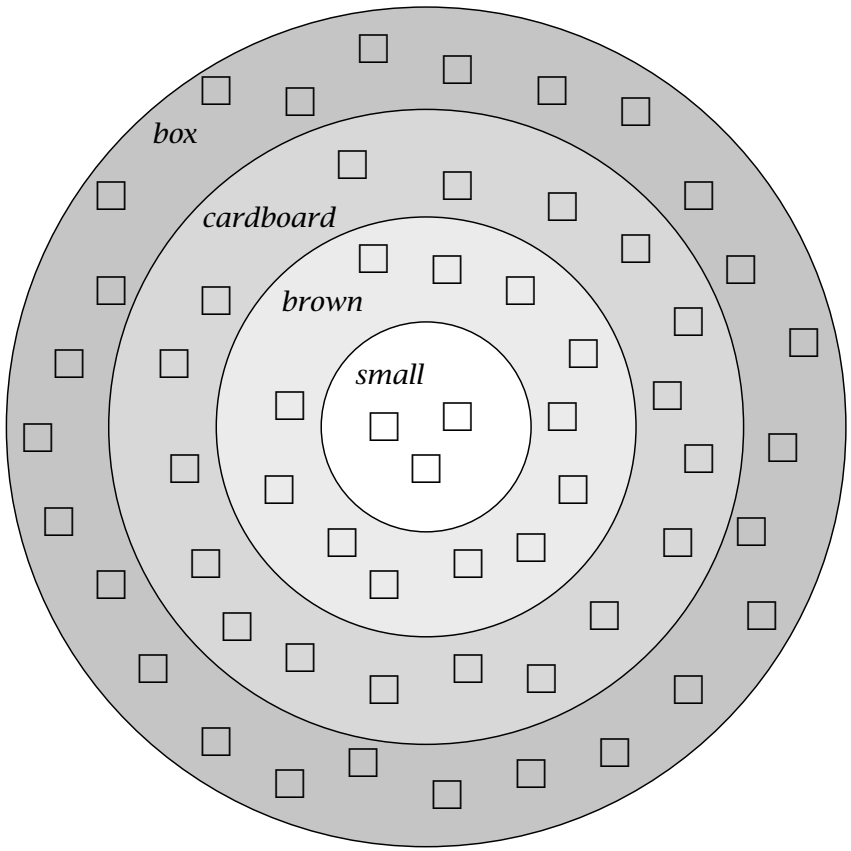
b. Mokilese: (Harrison 1976)

pwo:la wa:ssa siksikko
ball red small-DET

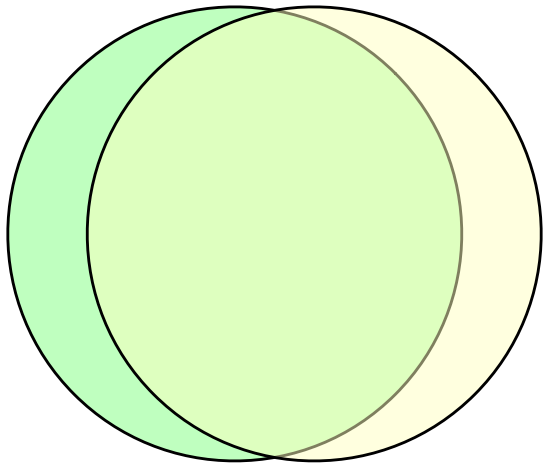
Generalization: (Scontras et al. 2017)

(6) The more objective description an adjective provides, the closer to the underlying noun position it occurs.

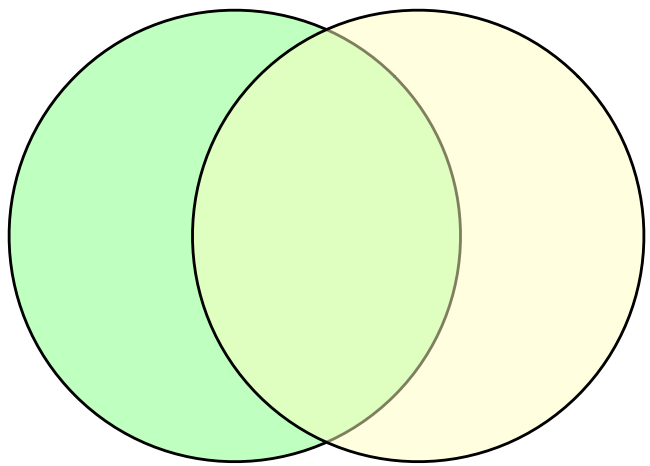
Structure-sensitive informativity account (Scontras et al. 2019)



objective



subjective



Preview: Movement

Do we need a representation specific to movement structures such as structure sharing / remerge / Hopf algebra?

- We do not need a movement representation to capture the meaning.
- If meaning is first (Sauerland & Alexiadou 2022), we expect just a commutative Free Magma, i.e. planar binary trees.
- Also language evolved for thought, but movement/non-movement or trace/pronoun is just about pronunciation?

1. empirical summary: chains don't involve copies, but semantically compatible, partial descriptions